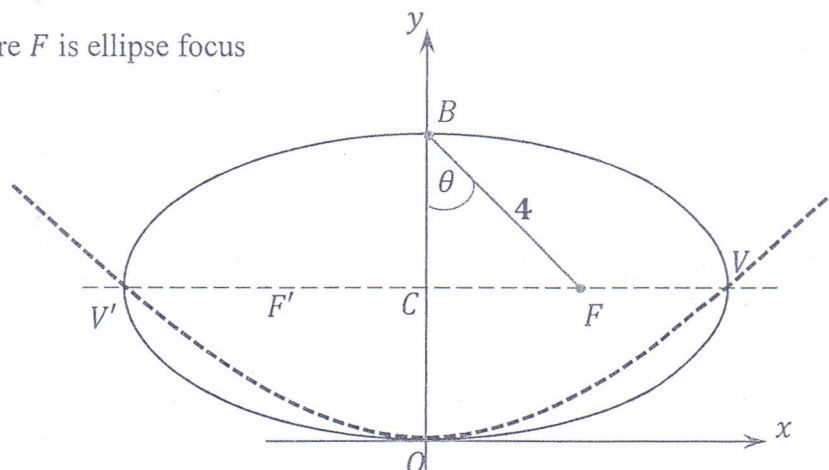




1) For the given figure, if  $FB = 4$  where  $F$  is ellipse focus

$C$  is the focus of the parabola



ملحوظة: الأبعاد على الرسم غير حقيقية

Complete the following:

For the parabola  $e =$

The equation of the parabola is

The equation of the ellipse is

$$\frac{(x - \square)^2}{\square} + \frac{(y - \square)^2}{\square} = 1$$

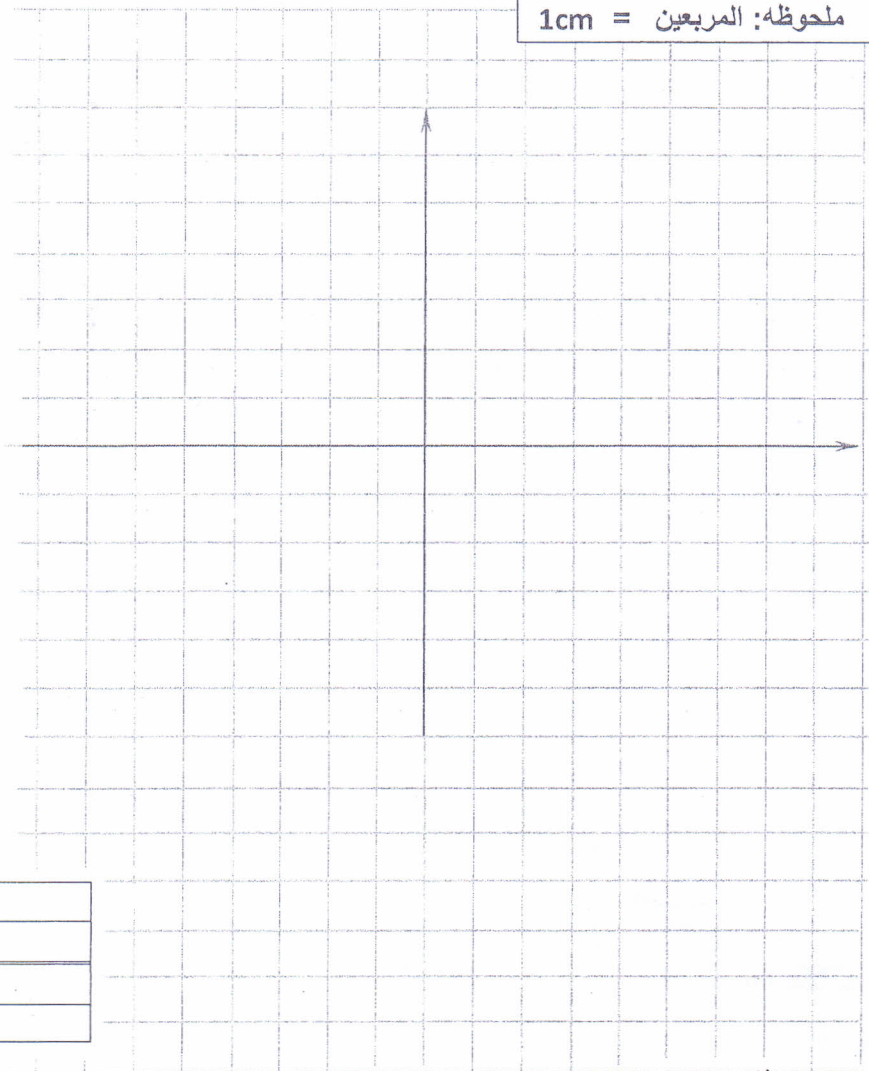
For the given ellipse  $e = \sqrt{1 - \frac{b^2}{a^2}} =$

$\sin \theta =$

2) Sketch the graph of

$$y = \sqrt{3x^2 - 12},$$

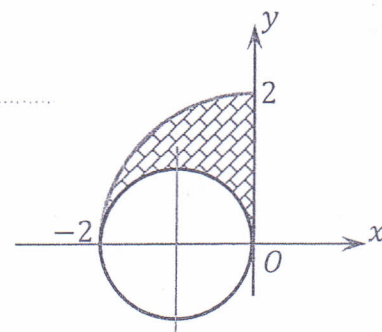
ملحوظة: المربعين 1cm =



$a^2 =$	$b^2 =$	$e =$
$ae =$	$a/e =$	

3) Complete the following:

i) The equation of the quarter-circle is .....



ii) The equation of the small-circle is: .....

iii) For the shaded region

$$\leq \theta \leq$$

$$\leq r \leq$$

4) Discuss the convergence and the divergence of  $\int_1^e \frac{1}{x \ln x} dx$

5) Find the value of  $\int_0^1 (\sqrt{4-x^2}) dx$

6) Find  $\int_0^{\pi/2} \left[ (2 \cos x) \int_{\sin x}^1 e^{u^2} du \right] dx$  without substitution

7) Find  $\int_0^{\pi} \left( \frac{\cos x + |\cos x|}{2 - \cos^2 x} \right) dx$